UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/781,677	02/20/2004	Kenichi Kitamura	500.43519X00	5539

24956 7590 08/22/2006

MATTINGLY, STANGER, MALUR & BRUNDIDGE, P.C.
1800 DIAGONAL ROAD
SUITE 370
ALEXANDRIA, VA 22314

EXAMINER	
MYINT, DENNIS Y	
ART UNIT	**PAPER NUMBER**
2162	

DATE MAILED: 08/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/781,677	KITAMURA ET AL.	
	Examiner	Art Unit	
	Dennis Myint	2162	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 July 2006*.

2a)☒ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,9,17 and 20-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,9,17 and 20-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *20 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date __.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This communication is responsive to Applicant's Amendment, filed on 20 July 2006.

2. Claims 1-2, 9, 17, and 20-22 are pending in this application. Claims 1, 2, 9 and 22 are independent claims. In the Amendment filed on 20 July, claims 1, 2, 9, and 17 were amended. Altogether, claims 3-8, 10-16, and 18-19 have been cancelled. Claims 20-22 were newly added. This office action is made final.

Response to Arguments

3. The applicant's arguments filed on 20 July have been fully considered but are moot in view of the new ground(s) of rejection.

Based on the amendments, Applicant argued that *Maurer simply discusses a general synchronization process after the mirror is split* (Applicant's argument, Page 8); and *the redo log does not relate to the differential data between the source data and the mirrored database and does not relate to the update information between a split disk and a current disk* (Applicant's argument, Page 10).

In response to these arguments, it is pointed out that the system and method of Maurer is not just a general synchronization system and method. Rather, Maurer teaches swapping logical units of a storage system wherein a first volume (first database) can be mirrored to a second volume (second database) and program/application access is switched to said second volume (second database) so

that said second volume (second database) acts in place of the first volume (first database), accepting updates (Paragraph 0060, i.e., *such as database transaction processing;* Paragraph 0112, i.e., *a data storage system includes a storage array having logical volumes or units that can be accessed by one or more clients via a switch* and *In the case where the first logical unit is no longer accessible, such as due to disk failure, the storage array can provide access to the copy of the first logical unit by the client by swapping the logical unit accessed by the host*)). As necessary, the method and system of Maurer could switch program/application back to the first volume (Paragraph 0112, i.e. *swapping the logical unit* and Paragraph 0055, i.e. *Mirrors can be synchronized in either direction* (i.e., from the BCV to the standard or visa versa). The relevant feature of the Maurer patent to the instant application is the feature of switching program access between databases.

Regarding the arguments concerning the redo log of Maurer, it is pointed out that Maurer teaches "the processing history" as recited by the original claim 1. However, Maurer does not explicitly teach the processing history being update information, which is recited in the currently amended claim 1. As such, new ground(s) of rejections are introduced in the following office action to address the amended and newly added claims.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claim 1-2, 20-21, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maurer III et al., (hereinafter "Maurer") (U.S. Patent Application Publication No. 2003/0065780) in view of Marshall et al., (hereinafter "Marshall") (U.S. Patent Application Publication Number 2003/0135478).

Maurer is directed to a data processing method and teaches the limitations:

"generating a second database as a duplicate of a first database allowing access from a program and after completion of the generation, switching a program access allowance from the first database to the second database" (Figure 3: *BCV* and *STD*

(e.g. DB Files); Paragraph 0060, i.e., *such as database transaction processing*; Paragraph 0112, i.e., *a data storage system includes a storage array having logical volumes or units that can be accessed by one or more clients via a switch* and *In the case where the first logical unit is no longer accessible, such as due to disk failure, the storage array can provide access to the copy of the first logical unit by the client by swapping the logical unit accessed by the host*),

"after switching the program access allowance, storing a history of a processing of the program to the second database as a processing history" (Paragraph 0106, i.e., *... then the information related to the data may also be backed up..... and archives/redo logs*), and

"updating the first database based on the processing history" (Paragraph 0107-0109, i.e., *redo log files*, and *Control files contain information in the Oracle database, including information that describes the instance where the data files and log files reside* and *This is where information that will be used in a restore operation is kept.*).

Note that when program access (control) is switched from the first database, any operation could be performed on the first database, while program access (control) is at the second database, such as reorganization of the first database or, as Maurer teaches, the storage of the first database might have been down.

Maurer does not explicitly teach the limitations: "executing predetermined processing for the first database, the processing history being stored during the execution of the predetermined processing", "after completion of the predetermined processing of the first database", and "upon completion of the updating of the first database according to the processing history stored" .

Marshall teaches the limitations: "executing predetermined processing for the first database, the processing history being stored during the execution of the predetermined processing", "after completion of the predetermined processing of the first database", and "upon completion of the updating of the first database according to the processing history stored" (Paragraph 0038, i.e., *According to the present disclosure, all updates to the database that occur during reorganization of database can be captured and stored into data spaces for later replay to the new database* and Paragraph 0011, i.e., *online reorganization of an existing database that occurs while read and update activity of the existing database continues may include unloading the existing database, reloading the existing database to a shadow database, building shadow database indexes, capturing updates for the existing database, taking the existing database offline, finalizing the shadow database with the any remaining updates when the existing database is taken offline, and placing the finalized shadow database online*) .

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the method of Maurer for switching program access back and forth between database volumes with the method of Marshall for storing updates while databases are being reorganized for updating the reorganized database after the process of reorganization is finished so that the combined method would switch program access from a first database to a second database while the first database is being recognized and save updates which occur during the reorganizing of the first data for updating the first database when the reorganization process is finished. One would have been motivated to do so in order to *reduce this outage or downtime* (Marshall, Paragraph 0011).

Claim 2 is rejected on the same basis as claim 1.

Referring claim 20, Marshall is teaches the limitation:

"wherein the predetermined processing is reorganizing the first database" (Paragraph 0038, i.e., *According to the present disclosure, all updates to the database that occur during reorganization of database can be captured and stored into data spaces for later replay to the new database*).

Claim 21 is rejected on the same basis as claim 20.

6. Claim 9, 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maurer in view of Marshall and further view of Yanai et al., (hereinafter "Yanai") (U.S. Patent Number 5742792).

Referring to claim 9, Maurer in view of Marshall does not explicitly teach the limitation: "wherein the program processing to the second database and the predetermined processing to the first database are performed in parallel and concurrently".

Yanai teaches the limitation:

"wherein the program processing to the second database and the predetermined processing to the first database are performed in parallel and concurrently" (Figure 14 and Figure 17; Column 6 Line 59-61, i.e., *migrating a volume concurrent with host*

access to the volume and *Abstract* of Yanai specification). Yanai teaches a method and system for remote data mirroring, wherein, in an active mode migration mode, host processing of a primary volume (the program processing to the first or second database) is concurrent with migration to a secondary volume (the predetermined processing to the first database (Column 6 Line 59-61, and "Abstract" of Yanai et al. specification).

At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to combine the feature of allowing program access to a database while a restore/mirror/update is being performed on a different database, based on the restore log/history on the database which currently allows program access, as taught by Yanai et al. with the method and system of Maurer III et al. so that in the combined system the program processing to the second database and the predetermined processing to the first database are performed in parallel and concurrently. Note that the method and system of Maurer III et al. could perform mirror/duplicate operations in any direction. One would have been motivated to do so in order provide a *data processing system, which automatically and asynchronously, with respect to a first host system, generates and maintains a back-up or "mirrored" copy of a primary storage device....* (Yanai, Column 2 Line 19-27).

Claim 17 is rejected on the same basis as claim 9.

Conclusion

7. Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Contact Information

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dennis Myint whose telephone number is (571) 272-5629. The examiner can normally be reached on 8:30 AM - 5:30 PM Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on (571) 272-4107. The fax phone number for the organization where this application or proceeding is assigned is 571-273-5629.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Dennis Myint

AU-2162

Primary Examiner
Cam Y Truong